Complimentarities and Conflicts in Policies Relating to GHG Emissions and Agriculture

A Policy Issue Paper Prepared for the
Agriculture and Agrifood Climate Change Table

By the

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Introduction

By their very nature, government policies create conflicts. There are "winners" and "losers", as well as intended and unintended impacts. Yet, in some instances, policies and programs can create "win-win", or "no regrets" situations. The purpose of this paper is to explore, in a conceptual way, the notion of complimentarity and conflict in policies relating to GHG emissions and agriculture. The first section outlines the complexity of policy making and the source of conflicts. The second section focuses on an approach to policy analysis that enables stakeholders and policy makers to identify areas of agreement and disagreement regarding policies. The third section identifies a number of policies that relate to GHG emissions and how they might be analyzed.

The Policy Making Process and Conflict

The challenge of policy making is to sort out the impacts of existing and proposed policies, and to offer realistic policy alternatives. For purposes of this discussion on climate change and agriculture (and probably for many other policy areas) policies generally have three types of impacts: economic, environmental, and societal.

Within the economic impact context, policies usually have the alternate objective of income enhancement and/or income re-distribution. Conflicts arise as a result of the scope of the application of the policy. For example, in the case of agriculture, eligibility for benefits is often a major source of contention. This could include commodity eligibility, geographic coverage, individual maximum and minimum limits on benefits, selection of a base or benchmark period, and timeframe for benefits. Policies that have a subsidy component are especially notorious in that they are perceived to distort market signals, hinder adjustment, and impact on competitiveness.

The environmental impact of policies usually relates to the impact on the quantity and quality of natural resources, both in the short and long term. Typically, this includes land, water, and air but may also include wildlife and its habitat.

The societal impact of policies focuses on people, their communities and institutions, and equity implications. This is complicated by the fact that equity considerations are usually focused on income distribution and competing objectives in the use of natural resources.

Identifying the stakeholders (real and perceived) is a critical step in the policy evaluation process. For the most part stakeholders with an economic perspective are relatively easy to identify and their objectives on policies are usually quite straightforward. However, as the range of perspectives is broadened to include environmental and societal considerations, it becomes more difficult to answer the question: who has a stake in this issue, and who speaks for that concern? This is exacerbated by the proliferation of

increasingly articulate and vocal special interest groups.

A final point on the source of conflict in policy development is the identification of the values and relative weights placed by these stakeholders on economic, environmental, and societal considerations. The challenge is to find a process that explicitly recognizes these sources of conflicts and attempts to take these into account as policies are developed. This is especially critical for dealing with how to reduce greenhouse gas emissions, where economic, environmental and societal impacts may clash.

An Approach to Policy Analysis

The Great Plains Program in IISD has been involved for a number of years in evaluating agriculturally related policies from the perspective of sustainable development. The project involved identifying agricultural and sustainability issues on Canada's Prairies, and providing a set of principles, criteria and a framework for the resolution of agricultural sustainability issues on the Prairies (Wilson and Tyrchniewicz, 1995). The framework was applied to a select set of policies: the Western Grain Transportation Act, Supply Management for Eggs, the Permanent Cover Program administered by the PFRA, and the North American Waterfowl Management Plan (Tyrchniewicz and Wilson, 1994). The evolution framework is presented in Figure 1.

Approximately 30 people were interviewed and numerous documents were perused to identify the sustainability issues. Some of the key issues identified included: land use, degradation of Prairie soil resources, preservation of biodiversity, water use and quality, use of common property, social and economic conditions on the Prairies, impact of trade on sustainability, and global warming resulting from GHG emissions.

Through a consultation process, a number of key principles and criteria were identified. The principles for sustainable development in agriculture were grouped under three broad categories: stewardship, economic viability, and social concerns. They are briefly outlined below:

1. Stewardship
   - Management: use resources in a fashion to maintain and preferably enhance the capacity of the resources for the benefit of current and future generations
   - Conservation: soil must be protected so that its inherent productivity is maintained
   - Rehabilitation: where renewable resources, such as soil and water, have been damaged or degraded, efforts must be expanded so that original productivity is restored or preferably increased, recognizing that this may be possible only over the long term.

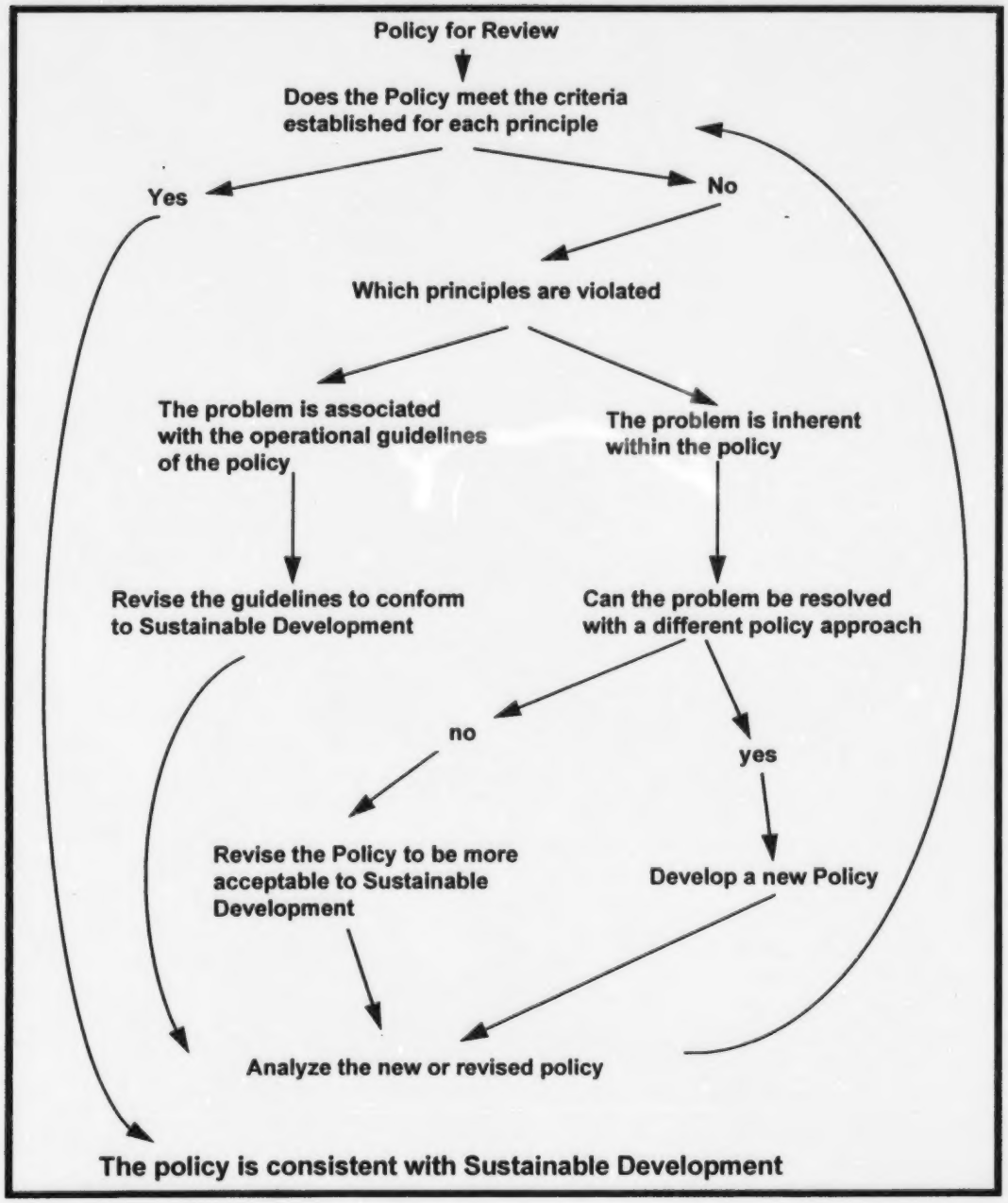
Policy for Review
Does the Policy meet the criteria established for each principle
Yes
No
Which principles are violated
The problem is associated with the operational guidelines of the policy
The problem is inherent within the policy
Revise the guidelines to conform to Sustainable Development
Can the problem be resolved with a different policy approach
no
yes
Revise the Policy to be more acceptable to Sustainable Development
Develop a new Policy
Analyze the new or revised policy
The policy is consistent with Sustainable Development

Figure 1. Evaluation Framework

2. Economic viability

Market viability: production cannot be sustained unless it is economically viable.

Cost internalization: the real costs of production including environmental damage or enhancement must be incorporated into the total costs when determining the net returns of production.

Scientific and technological innovations: research to enhance the development of technologies, which contribute to the maintenance of environmental quality and economic growth must be supported.

Trade policy: trade liberalization is an important component of sustainable development, provided that comparative advantage in trade recognizes the real costs of production including the maintenance of environmental integrity.

3. Social concerns

Societal consideration: economic activity should minimize social costs while maximizing social benefits, i.e., not detract from human health, cultural resources, or the quality of land and water.

Global responsibility: ecological interdependence exists among nations, giving rise to a responsibility to "think globally when acting locally" when using natural resources.

By themselves these principles are usually acceptable and can serve as benchmarks for the evaluation of policies and instruments. To make them usable, however, measurable criteria are required. A number of criteria for each principle were identified, and are presented in Appendix A. For an application of these principles and criteria, the interested reader is referred to Tyrchniewicz and Wilson, 1994. In summary, the subsidy provided under the Western Grain Transportation Act was shown to have deleterious effects on sustainable agriculture. On the whole, supply management was not consistent with sustainable agriculture. On the other hand, application of the Permanent Cover Program was consistent with principles of sustainable agriculture, and the policy analysis framework identified a number of areas of improvement. Interestingly, the PCP was terminated. The North American Waterfowl Management Plan was found to be compatible with and promotes sustainable agriculture.

The framework was designed to evaluate existing policies and was applied to policies and programs in the agricultural sector. The development of this framework, including the principles and criteria, was tested at two workshops with people involved in policy analysis and advising, and was generally viewed positively. With some modifications, this framework and process could be applied to assessing existing and proposed policies and instrument relating to the reduction of greenhouse gas emission in agriculture. The next section of the paper identifies a number of policies that might be potential candidate for evaluation.

Policies Relating to GHG and Agriculture

It is generally recognized that if Canada is to achieve its target of reductions in GHG emissions, incentives must be found that will encourage the private sector to adopt measures that will result in such reductions. An alternative approach is the use of regulatory measures, although the "Canadian Approach" has been to move away from such measures. The agriculture and agrifood sector is perhaps more fortunate in that there are measures that can increase carbon sequestration in soil. The challenge is to identify such incentives and assess their impacts.

Following on the framework outlined earlier, it is interesting to note the discussion on policies to achieve more soil carbon sequestration in a recent paper prepared by a team of respected scientists and published by the Soil and Water Conservation Society (Bruce et al, 1998). Bruce et al identify a number of criteria that should be considered in evaluating potential policy options for providing incentives to farmers and ranchers to engage in carbon sequestering practices. These criteria include:

Motivation: does it provide sufficient incentive to motivate farmers, landowners, or investors?
Sequestration potential: will it effectively result in carbon sequestration?
Long term commitment: will it result in long term commitment to sequester carbon?
Implementable: is it feasible to implement?
Transaction costs: are the transaction costs less?
Taxpayer impacts: what is the effect on the taxpayer?
Economic efficiency: is it economically efficient in terms of returns relative to cost?

In addition, they identify several other factors including:

Risk: potential of any policy initiative to reduce risks or provide risk management benefits.
Quantification and verification: for a policy to gain widespread acceptance as a GHG mitigation tool, the capability to measure/estimate and verify the additional amounts of carbon sequestered is vital
Equity: incentives must apply to early adopters and late adoptive evenly.

In reviewing various documents, it is possible to identify an array of policy incentives that have an impact on greenhouse gas emissions in agriculture. These include:

- Conservation Policies (tax incentives and subsidies) that encourage carbon sequestration in soils, includes incentives for conservation tillage and permanent cover programs.
- Tax incentives for development and use of technology that reduces GHG emissions
- Carbon credit trading
- Input subsidies for fuel and fertilizer
- Safety net, crop insurance, and other risk management programs that explicitly recognize the cost of GHG emission reduction.

A combination of the IISD framework and the criteria/factors identified by Bruno et al provides a good potential to assess some of these policy alternatives that might be considered for reducing greenhouse gas emissions in agriculture. Obviously, there will be some "win-win" or "no regrets" options that can achieve wide acceptance, while other incentives may result in conflicts within the agriculture sector, with other economic sectors, and with other groups in Canadian society. In an ideal world, one would design policies that please everyone. In reality, policy conflicts will continue to exist. Our challenge is to develop policies that minimize the conflicts.

References:

Bruce, J. P., et.al, "Carbon Sequestration in Soils", Soil and Water Conservation Society, July, 1998.

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Myers, Norman, "Perverse Subsidies: Tax Dollar Undercutting Our Economies and Environments Alike", IISD, 1998.

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Appendix A Criteria for Sustainable Agriculture[1]

The criteria for each principle are provided below.

Management
- maintain the integrity of ecosystems
- enhance the (quantity and quality) flow of services from the resource base for the present and future generations
- provide for integrated (shared) resource management

Conservation
- efficient use (consumption) of all resources, both renewable and nonrenewable
- maintain biological diversity
- provide habitat for wildlife and plants both on land and water
- optimum use of land for sustainability

Rehabilitation
- restore the productivity of a degraded resource
- apply waste management principles (reduce, reuse and recover)
- promote complementary production systems
- promote closed production systems where appropriate
- replace degrading processes with others that are beneficial
- revitalize the resource

Market Viability
- reduce trade barriers
- economically efficient use of resources
- assure a sustainable income
- promote sustainable human economic activity
- sensitive to the supply and demand of the market
- unbiased as to commodities & mode of transport
- enhance value added activity

Cost Internalization
- full environmental costing
- include all costs associated with economic activity
- contingent valuation where costs can't be internalized
- use of natural system economic accounting (inclusion of resources and externalities in system of national accounts)
- beneficiaries of externalities assessed appropriate costs

Scientific and Technology Innovations (R&D)
- enhance air, water and land management
- ameliorate waste management

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[1] Source: Tyrchniewicz and Wilson, 1994, pp. 13-14.

- increase productivity
- reduce consumption of non-renewable resources
- promote technology transfer
- advance biotechnology
- promote technologies that utilize yet preserve native ecosystems
- promote technologies to further environmental quality including human health and economic growth
- develop industries benign to environment

Trade Policy
- maintain or enhance resource base of different trading regions
- apply true comparative advantage
- promote international market responsiveness
- increase value added exports
- consist with trade agreements
- support trade agreements which recognize externalities

Societal Considerations
- promote gender equity
- enhance human health & education
- preserve aesthetic values
- water quality and quantity available for alternative uses
- alternative options for employment (adjustment programs)
- maintain and/or enhance food quality, safety and quantity
- societal neutrality (does not privilege one group over another)
- protect agriculture from urbanization
- increase productive capacity of the poor
- promote fairness and equity in resource allocation for commercial and recreational purposes
- provide an acceptable quality of life & livelihood
- sensitive to objectives/goals of local people and communities
- respect human rights

Global Responsibility
- recognize interdependence among nations
- promote intra and intergenerational equity
- encourage food health and safety
- assist in emergency food aid programs
- technology transfer research and development
- promote fairness and equity in income distribution and trade.